Listing and Amendments to the Claims

This listing of claims will replace the claims that were published in the PCT Application and per the International Preliminary Examination Report:

1.   (currently amended) In a system for processing video data comprising groups of interleaved trellis encoded data packets, apparatus (1) for providing trellis decoded data, comprising:

means (2) for generating decision data (28,29) associated with trellis state transitions in response to said video data, comprising means for estimating a value for a second data bit from a pair of first and second data bits;

a traceback network (33) responsive to said decision data for identifying a sequence of antecedent trellis states, as determined by a state transition trellis, wherein said antecedent states are identified for a sequence of collocated interleaved packets; and means (50) responsive to said identified sequence of antecedent trellis states, for providing said trellis decoded data (51).

2. (currently amended) A system according to claim 1, further including means (3) for calculating for a current trellis branch a value (14) for the first data bit and an estimated value (15) for the second data bit.

3. (currently amended) A system according to claim 3, further including means (8) for concurrently selecting the appropriate first data bit (26) and second data bit (27) into a trellis state in response to the selection of the minimum path metric into the trellis state.

4. (currently amended) A system according to claim 4, further including means (23) for concurrently selecting the appropriate first data bit (6) and second data bit (31) among all trellis states in response to the selection of the minimum path metric among all trellis states.

5. (currently amended) A system according to claim 4, wherein the traceback network (33) further comprises means (45) for storing the value of first data bit (6) and the estimated value of the second data bit (31).

6. (currently amended) A system according to claim 5, further including means (41) for providing a plurality of trellis decoded data sequences and means (52) for identifying one of the plurality of trellis decoded data sequences with a pointer updated by identifying antecedent trellis states with said decision data.

7. (currently amended) A system according to claim 6, wherein the pointer selects one of the first data bits (6) and one of the second data bits (31) as correctly decoded data bits.

8. (original) In a system for processing video data comprising groups of interleaved trellis encoded data packets formed from data pairs containing a first data bit and a second data bit, a method of providing trellis decoded data comprising the steps of:
       calculating a value for the first data bit;
       estimating a value for the second data bit;
       generating decision data associated with trellis state transitions in response to said video data;
       identifying a sequence of antecedent trellis states in accordance with a state transition trellis, wherein said antecedent states are identified for a sequence of collocated interleaved packets in response to said decision data; and
       providing said trellis decoded data in response to said identified sequence of antecedent trellis states.

9. (original) A system according to claim 8 , further comprising the step of calculating for a current trellis branch the value of the first data bit and the estimated value of the second data bit.

10. (original) A system according to claim 9 , further comprising the step of concurrently selecting the appropriate first data bit and second data bit into a trellis state in response to the selection of the minimum path metric into the trellis state.

11. (original) A system according to claim 10 , further comprising the step of concurrently selecting the appropriate first data bit and second data bit among all trellis states in response to the selection of the minimum path metric among all trellis states.

12. (original) A system according to claim 8 , further comprising the steps of:
providing a plurality of trellis decoded data sequences and;
identifying one of the plurality of trellis decoded data sequences with a pointer updated by identifying antecedent trellis states with said decision data.

13. (original) A system according to claim 12, further comprising the step of updating the pointer once for each epoch.

14. (currently amended) A trellis decoder (1) having a plurality of trellis branches and trellis states for decoding encoded symbols having at least a first data bit and a second data bit, the trellis decoder (1) comprising a branch metric computer (2), the branch metric computer (2) being adapted to compute a metric value between the encoded symbol received by the trellis decoder and the encoded symbol associated with the trellis branches, the branch metric computer (2) generating a plurality of output bits (14, 15) associated with a current trellis branch leading from a trellis state, the output bits (14, 15) identifying characteristics of the first and second data bits.

15. (currently amended) The trellis decoder of claim 14 , wherein the branch metric computer (2) further comprises a plurality of computer subunits (3), each computer subunit (3) being associated with a particular trellis state, each computer subunit (3) generating a plurality of signals (12, 13, 14, 15, 16, 17) identifying an estimated characteristic of each trellis branch leaving the particular trellis state associated with the computer subunit.

16. (currently amended) The trellis decoder of claim 15 further comprising an add-compare-select unit ~~(8)~~, the add-compare-select unit receiving the branch metric computer output bits ~~(12, 13, 14, 15, 16, 17)~~ identifying characteristics of the first and second data bits, the add-compare-select unit ~~(8)~~ choosing the appropriate first ~~(6)~~ and second ~~(31)~~ bits based on the selection of the minimum path metric.

17. (currently amended) The trellis decoder of claim 16 wherein add-compare-select unit ~~(8)~~ further comprises a plurality of add-compare-select subunits ~~(23)~~, each add-compare-select subunit being associated with a particular trellis state, each add-compare-select subunit ~~(23)~~ choosing the appropriate first ~~(6)~~ and second ~~(31)~~ bits corresponding to each state based on the selection of the minimum path metric into the state.

18. (currently amended) The trellis decoder of claim 17 further comprising a traceback unit ~~(33)~~, the traceback unit receiving the estimate ~~(31)~~ of the second data bit from each of the add-compare-select subunits ~~(23)~~ and selecting one of the estimated second data bits ~~(31)~~ as a correctly decoded data bit.

19. (currently amended) The trellis decoder of claim 18 wherein the traceback unit ~~(33)~~ receives the value ~~(6)~~ of the first data bit from each of the add-compare-select subunits ~~(23)~~ and selects one of the first data bits ~~(6)~~ as a correctly decoded data bit.

20. (new) In a system for processing video data comprising groups of interleaved trellis encoded data packets, a method for providing trellis decoded data, comprising the steps of

      generating decision data associated with trellis state transitions in response to said video data, said generating step including the step of estimating a value for a second data bit from a pair of first and second data bits;

      identifying a sequence of antecedent trellis states, as determined by a state transition trellis in response to said decision data, wherein said antecedent states are identified for a sequence of collocated interleaved packets; and

      providing said trellis decoded data in response to said identified sequence of antecedent trellis states.